MINDING THE MARGINS:
OPPORTUNITIES FOR AN EXPANDED MAINTENANCE PRACTICE

BY

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THESIS

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ABSTRACT

The projects presented herein are the result of participatory research and close collaboration with David Monk and Heartland Pathways. They evolved through conversations, interviews, and field trips led by David Monk. The Heartland Pathway became a laboratory for testing generative stewardship techniques and conservation maintenance practices.

Stewardship is the gathering of value into a theoretical framework for the purpose of preservation and the continuance of some condition. Maintenance is the enactment of that value system; the externalization of value. An expanded maintenance practice is the expansion of a landscape ethic that understands maintenance as the preservation and continuance of the natural world as well as "material objects, images, values, cultural codes, places, cognitive schemata, events, and maps." (Corner 1999) Stewardship must relate to the entire continuum of nature and culture. Landscape is an ecosystem, so to speak, of interrelated natural and cultural processes. These processes and interrelations are entry points for uncovering the morphology of landscape and become the catalysts for creating narratives that guide stewardship and maintenance practice.

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Chapter 1: **Stewardship**

“Reality, then, as in concepts such as ‘landscape’ or ‘space’, is not something external and ‘given’ for our apprehension; rather it is constituted, or ‘formed’, through our participation with things: material objects, images, values, cultural codes, places, cognitive schemata, events and maps. As the philosopher of science Jacob Bronowski pointedly observes, 'there are no appearances to be photographed, no experiences to be copied, in which we do not take part. Science, like art, is not a copy of nature but a recreation of her'." (Corner 1999)

James Corner’s statement contains several ideas that are touchstones for thinking about an expanded maintenance practice and the process by which that practice is played out. Corner points out that landscape is actively created through our participation with those things that form or represent landscape. Landscape is a cultural construction, built to satisfy certain value systems or narratives. The substance of our conceptions determines the cultural attitude toward landscape. The same can be said for cultural concepts of nature. (Balmori 2011) In either case, landscape or nature, active participation means participation within conceptual frameworks as well as with the thing itself. Corner's statement reflects the dismantling of the dichotomy between nature and culture, where culture is woven into the tapestry of nature,; firmly situating its role in the creation of nature. Just as nature is cultural, culture is to some degree natural, and stewarding landscape means participating in a continuum between the two.

The "things and material objects" that comprise the landscape are artifacts "constituted and formed" by the hand of culture. The materiality of the artifact is of particular interest to

maintenance practice. Material contains the germ of narrative because things have origins and bear the evidence of the past. Narrative imbues material with meaning and significance. A stone is a stone until it is given a narrative through which to understand and appreciate it. Once it is understood that a particular stone acquired its rounded form through glacial processes, for instance, then the stone becomes significant, and imbued with meaning. (fig.1)

Figure 1: A stone bearing the marks of glaciation; rounded and gouged. It was discovered at Pope Prairie in Rantoul, Illinois. *Photo by author*

Corner quotes the philosopher of science as saying ”there are no appearances to be photographed, no experiences to be copied, in which we do not take part. Science, like art, is not a copy of nature but a recreation of her.” Landscape stewardship, then, is not necessarily about the preservation of some condition or narrative from a particular point in time. Rather, it is the re-creation of those conditions or narratives within current contexts. After all, history

isn't fixed or absolute, nor is it wholly located in the past. (Hays 2013) It might just as easily be said that *history*, like science and art, is not a copy of nature but a recreation of her.

To be a steward of the environment is to be an active participant in the constitution and formation of space. Corner's statement opens the door to a kind of speculative stewardship practice that is at liberty to create as well as conserve. Here we are talking not about pristine wildernesses, but rather about the urban wilderness "constituted and formed" by culture. (Del Tredici 2010) They exist largely incidental to urbanization and extend far beyond city centers. The landscape of drainage ditches, parking lots, roadsides, rights-of-way, brownfields, landfills, and superfund sites are typical constituents of an urban wilderness. (fig. 2)

Figure 2: A roadside Prairie outside Monticello, Illinois. Prairie Dock at its peak abuts a mown edge. *Photo by author*

Stewardship as it relates to the environment generally refers to conservation and preservation of natural places through management activities. For example, in the case of prairie conservation, invasive woody and herbaceous species are monitored and removed to prevent their colonizing the prairie and periodic burns are required as common maintenance tasks.(fig. 3) In the case of forest conservation, invasive understory trees and shrubs are removed as are species such as Kudzu that threaten to cover native trees with a dense tapestry of vines. These practices are designed to create conditions which favor native ecosystems over introduced and weedy species.

Figure 3: A typical prairie burn at Experimental Grove, in Monticello, Illinois. *Photo by author*

As ideas about landscape evolve, so does the territory of the landscape steward. Since landscapes are artifacts of culture, stewardship is also concerned with stewarding those

artifacts, the material of culture. A cultural remnant such as a train trestle or a grain elevator can easily be included in the purview of the landscape steward.(fig. 4) Of course, some of the most iconic works of contemporary landscape architecture—namely, Gas Works Park by Richard Haag, Landschaftspark Duisburg-Nord by Latz + Partner, and FreshKills Park by Field Operations—have paved the way for the highlighting cultural material as part and parcel of landscape.

Figure 4: Abandoned train trestle over the Sangamon River. *Photo by author*

Stewardship is concerned with ecology and living systems as both a course of action and a mode of thinking. But landscape has, contained within it, a multitude of narratives; it is a system of systems. It is the aspiration of the steward, architect, and artist to uncover those narratives and to probe those systems for their generative power. In his essay "Art at the end of Environmentalism: From Biosphere to the Right to Survival," the art historian and critic Yates McKee writes, "The task of new environmental art would be to unsettle the self-evidence of “environment” itself, addressing it as a contingent assemblage of biological, technological, economic and governmental concerns whose boundaries and agencies are perpetually exposed to conflict.”Similarly, the artist Mary Miss describes landscape and the environment as accumulating "all the layers of paleontology, geology, botany, ecology, hydrology, and cultural influences that have occupied the area." (Harper, 2007) These statements run parallel to James Corner's definition of landscape, quoted at the outset. There is an obvious commonality between landscape architecture and environmental art that has overcome traditional thinking of nature and the environment and become more nuanced and inclusive of culture.

Chapter 2: **Maintenance practice**

Stewardship is the gathering of value into a theoretical framework for the purpose of preservation and the continuance of some condition. Maintenance is the enactment of that value system; it is the externalization of value. An expanded maintenance practice is really the expansion of a landscape ethic that understands maintenance as the preservation and continuance of "material objects, images, values, cultural codes, places, cognitive schemata, events, and maps"—in other words, the entire continuum of nature and culture.

Stewardship is the theory to the practice of maintenance. Maintenance can be defined as any prolonged and regular activity that aims for the continuance of a thing or condition. It is interesting to look at the etymology of the word maintain in order understand how maintenance can be expanded to include the cultivation of a relationship with, in this case, the environment based on firsthand experiences.

Looking at the etymology of the word maintain, which is derived from the Latin words *manu* and *tenere*, we discover that it relates to the hand—specifically, to holding in or supporting with the hand. In the context of environmental stewardship and landscape we can say that to maintain is literally to hold it in the hand.(fig. 5) In other words, to maintain the environment suggests direct participation at the tangible scale of the body. Keeping this in mind, we can begin to understand the closeness and directness that the etymology of "maintenance""implies. That understanding, perhaps, helps to imbue the practice of maintenance with significance as the process through which we can relate to our environment with hands-on directness, one on one, a kind of action research that begins with inquiry about

the conditions of the landscape in its physical form and at the scale of the body. Again, Mary Miss, when describing the motivation of artists at the burgeoning of what became known as environmental art, states that artists "went into the landscape and the world" and discovered a limitless opportunity to engage art and artists with "shaping the conversation" about the "issues of the time." According to Miss, that "meant not just being a respondent saying "this is what's happening in culture and I'm going to respond to it." It meant active participation in the public sphere."(Harper, 2007)

Figure 5: The hand with tool superimposed over Wild Cat Creek Trestle. *Photo by author*

Insofar as it relates to the hand at the scale of the body and to direct participation with landscape, maintenance is also related to craft. Craft is defined as an art, trade, or occupation requiring special skill, especially manual skill. The especially salient aspect of this definition comes from the words manual skill. As noted, the English word “maintain” is derived from the Latin roots *manu* and *tenere*; the operative word here is *manu*, which is closely related the word manual or “in or of the hand.” This is a key concept for expanding the definition of maintain from drudgery and banality to an action approached with the art and manual skill of the craftsperson.

Chapter 3: **Urbana Land Arts**

Urbana Land Arts (ULA) was conceived as a platform for projects exploring stewardship as a creative act. The name was an outgrowth of a project called Allman's Boneyard and Saline in which a creek cleanup effort was undertaken in the Boneyard and Saline creeks in and to the northeast of Urbana, Illinois. The Allman's project began with exploration. (fig. 6) The Boneyard and Saline creeks were traversed by canoes and on foot in the interest of answering the simple question: What's out there? The explorations led to a clean-up effort, but also to further questions about the creek's condition, morphology, and history. Exploring these questions provided insight into previously unknown or unseen things, such as the history of drainage in East Central Illinois, the prevalence of homelessness, and the hybridized ecological/cultural conditions of the creeks. (fig. 7)

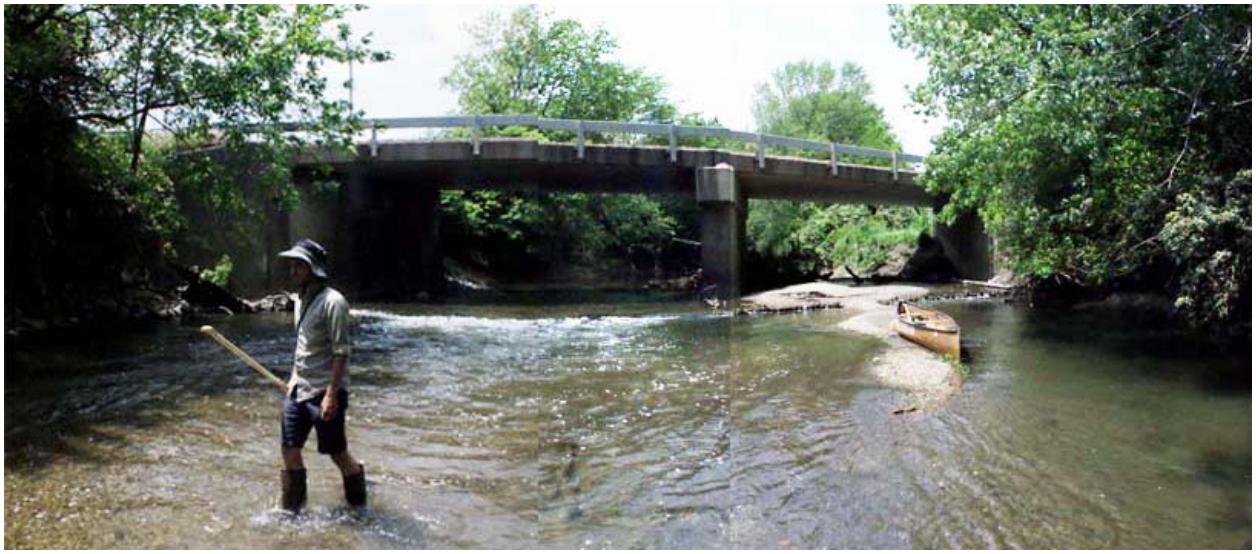

Figure 6: Exploring the Saline Creek in the Lincoln canoe somewhere between Urbana and St.Joseph, Illinois. *Photo by author*

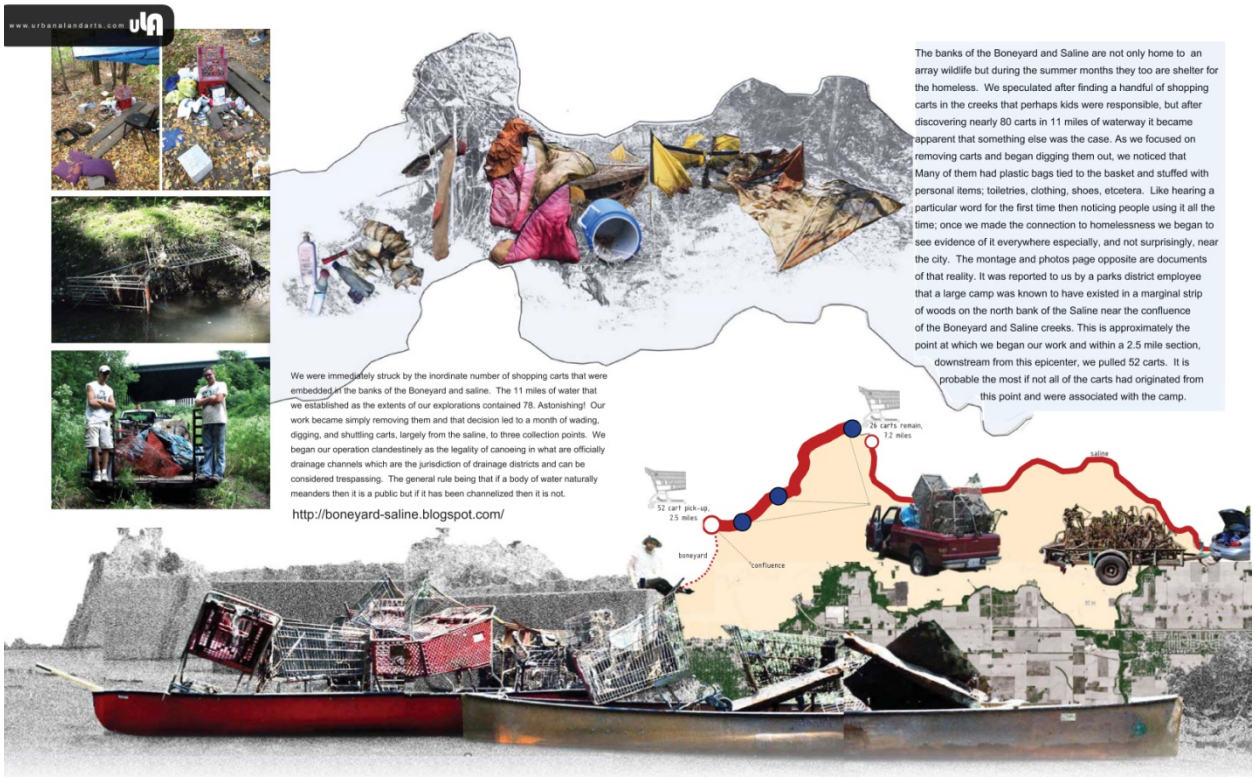

Figure 7: 52 shopping carts were pulled from the Boneyard and Saline. Why? Homelessness has been a persistent presence in Urbana, Illinois. The marginal woods that line the Saline becomes shelter. Shopping carts are useful when you live on the street. *Photos by author*

The project resulted in more than two tons of debris, mostly shopping carts, being removed from the channels, but it was after more than removing debris. Specifically, it explored the possibility that landscape, and active participation in it, could lead to a kind of creative stewardship practice. Urbana Land Arts was the name given to a hypothetical municipal arm, something like a parks district, that could manage the work. In fact, the project was funded in part by the city of Urbana through its public arts program. (fig. 8)

Figure 8: Allman's Boneyard&Saline garden and shopping cart gabions. *Photo by author*

The project culminated in an exhibition at a defunct automobile repair shop in downtown Urbana, Illinois. The repair shop was transformed into the supposed headquarters of Urbana Land Arts. It featured a garden made from material sourced from the creeks and a nearby road construction project. The exhibition also featured video footage, sound samples, artifacts from the creeks, and the canoes used to ferry debris and navigate their waters. The result was a multifunctional environmental artwork that was able to synthesize typical stewardship goals with sculptural and representational practices. (fig. 9) The Allman's project paved the way for further explorations of the synthesis between environmental stewardship, art, and design through the quasi organization Urbana Land Arts.

Figure 9: Installation view of Allman's Boneyard&Saline, garden and "headquarters" of Urbana Land Arts. *Photos by author*

Chapter 4: **Heartland Pathways**

Heartland Pathways (HP) is a prairie conservation effort in East Central Illinois that owns 34 miles of railroad rights-of-way(ROW). The land was purchased in response to the rail banking act in the late 1980s through the vision of David Monk. Monk is a longtime advocate of prairie in East Central Illinois and is a conservationist with strong roots in environmental activism. He sees the marginal roadside and ROW environments as the last stand for remnant prairie and a critical location for conservation efforts. His vision for Heartland Pathways is that it become a prairie preserve and, perhaps once more, a viable rail corridor. (fig. 10)

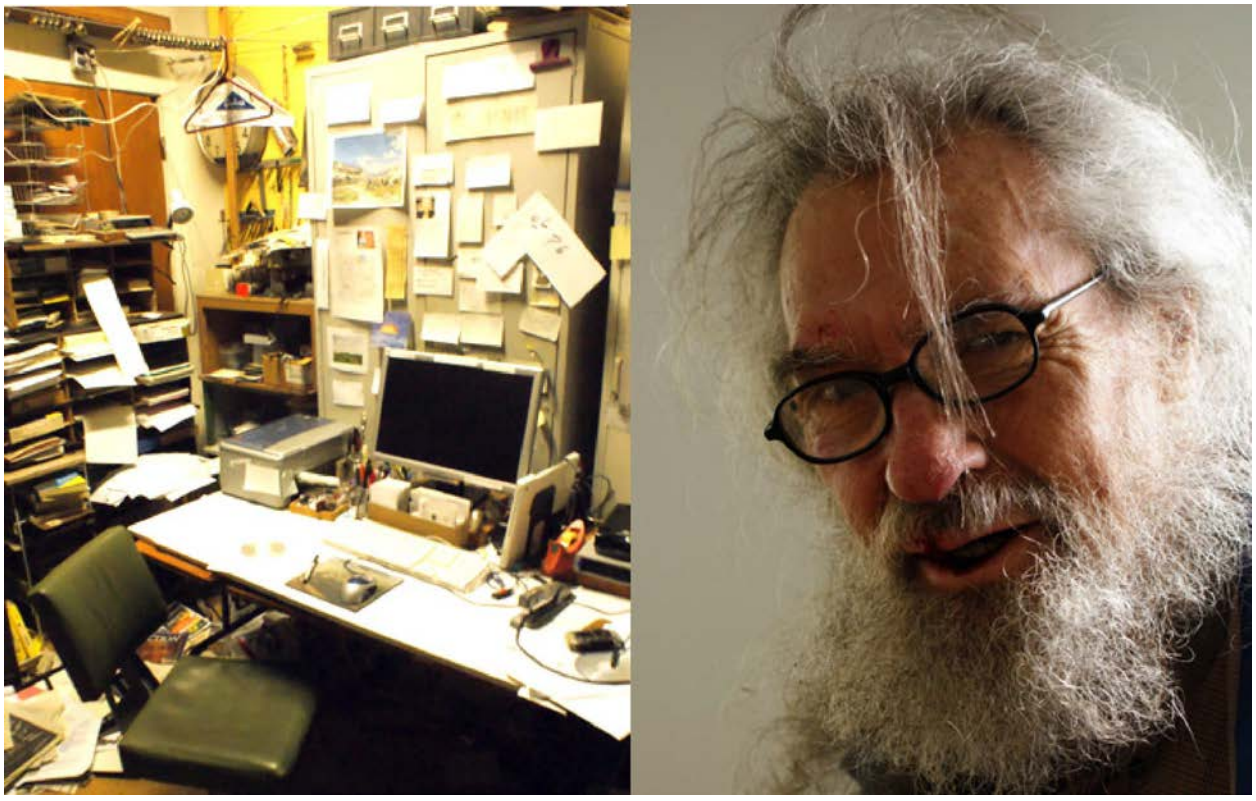

Figure 10: David Monk and his office in downtown Champaign, Illinois. *Photos by author*

Heartland Pathways stretches across three counties: Champaign, Piatt, and DeWitt. The landscape is largely agricultural, and the Heartland Pathway is a thin strip no more than a 100' wide at its widest that transects the sameness of corn and soy. The Heartland Pathway crosses one major river, the Sangamon, doing so twice as there are two legs of the ROW. Like the Saline creek, the Heartland Pathway acts as an artery for wildlife and plant communities to traverse. The ROW forms part of a larger network of marginal linear corridors in East Central Illinois.

The Heartland Pathway itself was once a railroad corridor intersecting with major north/south railroads in Indiana and Illinois. The roads were built in the mid to late 1800s and were decommissioned in the 1980s. (Piatt 1887) It is interesting to note that railroads were responsible for the expansion of settlement into the prairies of Illinois, thereby hastening the disappearance of prairie as the landscape was transformed into agriculturally viable ground. (Sears 2013) The irony is that these same roads are now the location of the only remaining remnants of that pre-settlement prairie, as East Central Illinois is now a vast agricultural expanse.

David Monk is an environmental activist who, at 80 plus years old and with more than half of his life spent advocating for prairie, will still hatch a plan for marching a band down the Heartland Pathway in a show of defiance toward farmers who encroach on the organization's ROW. Over the years, he has developed a narrative about the prairie that begins with glaciers and soil and ends with the warning that only 1 square mile of prairie remains in Illinois. Monk will drive anyone at anytime to see an example of that remaining square mile. He has made a

career of sorts from being a docent of the East Central Illinois landscape and is known by many as the Prairie Monk, which is also the name of his weekly radio show.(fig. 11)

Figure 11: David Monk leads a crew of students picking seed at a borrow pit turned reconstructed prairie named Pope Prairie. *Photo by author*

Heartland Pathways is the perfect opportunity to experiment with maintenance practice as it relates to a distinct set of circumstances and challenges that revolve around maintaining a 34-mile linear ROW. Heartland Pathways is also in constant need of people to participate with stewardship work, most of which deals with preventing woody species from colonizing prairie remnants, seed collection, and prairie burns. The author, using Urbana Land Arts as a platform, began a long collaboration with Heartland Pathways and David Monk. David welcomed participation, provided a warehouse space for projects, and, over the course of several years, presented an exhaustive study of railroads, prairie, and the intricate politics of conservation.

Urbana Land Arts began work by removing a woody shrub known as Autumn Olive (*Eleagnus umbellata*) from a small strip of prairie named Pipeline Prairie (named for the natural gas pipelines that cross its path). The work requires cutting Autumn Olive trees and treating the stumps with an herbicide tinted with blue dye.(fig. 12) The goal is simply to prevent these prolific shrub trees from creating a dense canopy, thus shading out the prairie which thrives on

intense summer heat and sunlight. A section of prairie that has been cleared of Autumn Olive using this technique will be canopy free for up to three years. Without an ongoing, concerted effort to keep these shrubs at bay, the remnant prairies will quickly become woodlands. That successor condition will be more urban in composition, populated by a mix of vigorous urban plant species and their native counterparts. (Del Tredici, 2012) Stewardship of the Pipeline Prairie requires a perpetual intervention in the natural succession of plant communities in order to maintain its remnant constituents.

Figure 12: The stump of an Autumn Olive shrub spot treated with glyphosate stained with blue dye. *Photo by author*

It should be noted that, according to David Monk, Autumn Olive was introduced into the Illinois Landscape by the Department of Natural Resources (DNR). It was a conservation response to dwindling habitats in a state whose land was, and remains, dominated by agriculture. The shrub has been very successful in East Central Illinois and is another in a long line of species that has been introduced by culture and subsequently become naturalized into the environment.

The DNR involvement sheds light on the pitfalls of stewardship wherein the supposed solution to one problem becomes the catalyst for another. The prevailing environmental message is that ecosystems are tenuous and meddling can be disastrous. One need only drive through the middle of Illinois to witness the wholesale displacement of ecologies, a tragedy that we will probably never fully comprehend or appreciate. Nevertheless, stewardship should not become mired in lament and haunted by the vision of what once was. Stewardship must be generative and flexible, and it should strive for multiple narratives.

David Monk is a resource for more fully understanding the history, ecology, and challenges of conserving prairie. The linearity of the Heartland Pathway makes it a complex landscape as it transects many jurisdictions and shares its ROW with energy and communication infrastructures, each making claim to the same territory.

David Monk tends to think in the mode of a John Muir or Aldo Leopold, meaning that there is strong moral tone associated with his prairie message and a tendency to equate Heartland Pathways prairie to more substantial and diverse ones. The tendency no doubt comes from years of having to convince people and other conservationists that the ROW is a

legitimate expression of prairie. (fig. 13) Whereas it is true that several sections of Heartland Pathways' 34 miles do contain prairie remnants which host many species that are very rare in the corn belt, they are diminishing rapidly and are hardly equal in quality and diversity to the tracts commonly adopted for prairie conservation. There is an image of *Prairie* that permeates the imagination, where vast untouched vistas stretch out overland, tall grass as far as the eye can see. This image becomes the basis for the should and ought of prairie conservation; it is the ideal condition, some might say the pure state. This conception becomes the iconic image of how a prairie ought to be. This has implications for prairie conservation efforts. Often times marginal prairie landscapes, like those found on roadsides and railroad rights-of-way, are not considered high enough quality to waste limited resources conserving. The choicest prairie fits more closely the iconic image and is where conservation groups tend to focus their attention. Tracts of prairie are favored over thin strips largely because ecologists describe the prairie as a uniquely complex and interrelated ecosystem that requires expanses to fully express its diversity. (Packard, 1997)

The Heartland Pathway certainly is not a prairie in the conventional sense; it is a cultural prairie, a place where the tide of culture laps at it shore, forming its boundary. It is an edge *and* a barrier. It is also a field and grounds for travel. It is a remnant, an artifact, a prototype; it is grounds for tending and for making.

Figure 13: A selection of noteworthy plants found on the ROW. *Photos by author*

Chapter 5: **Hedge-Work**

Hedge-work was a response to the task of removing woody species such as Autumn Olive from prairie remnants along Heartland Pathways' rights-of-way. As was mentioned above, woody species pose a threat to the continuation of prairie by growing dense canopies that shade out sun-reliant prairie. Autumn Olive in particular also threatens to change the nutrient composition of prairie soil because it is a nitrogen fixing plant. If Autumn Olive is allowed to persist for too long on a particular site, it can significantly raise the nitrogen levels in the soil, which in turn invites a new succession of herbaceous urban plants that can outcompete prairie species, thus altering the constituency of a prairie remnant. (Packard 1997)

The bulk of Urbana Land Arts' work on the right-of-way dealt with removing those plants that are quickly colonizing. One of the challenges that process creates is what to do with the massive amounts of brush created after cutting the plants. (fig. 14) The problem led to several hedge-making experiments designed to bring a level of intentionality and craft to these piles of brush.

Figure 14: A newly cut Autumn Olive grove, piled, with stems facing same direction. *Photo by author*

Heartland Pathways' ROW is a cultural edge; it forms a boundary between land uses.

Historically, boundaries and borders, especially in agricultural areas, were delineated by hedges.

Heartland Pathways' ROW bears the remnants of that past.(fig.15) The relationship between railroads and farmers during the 19th century was prone to conflict as livestock often trespassed onto railroad rights-of-way and were killed by passing trains. (Sears 2013) One solution was to plant living fences or hedges as a way to enclose pastures.(fig. 16) Common trees used as hedges and fences were Osage Orange (*Maclura pomerifera*) and Black Locust (*Robinia pseudoacacia*). Both of those feature an abundance of thorns, which help deter livestock from trespassing and suckering roots, which helps in turn to develop dense hedges over time. But, hedge laying fell from favor as newly developed fence technologies, such as barbed wire, became more expedient than growing living fences. Heartland Pathways features several remnant hedges that are now gnarled and twisted, fully formed Osage Orange trees. (Fig. 17)

Figure 15: An Osage hedge row abutting the Heartland Pathways on Old Country Farm Rd Monticello, Illinois. *Photo by author*

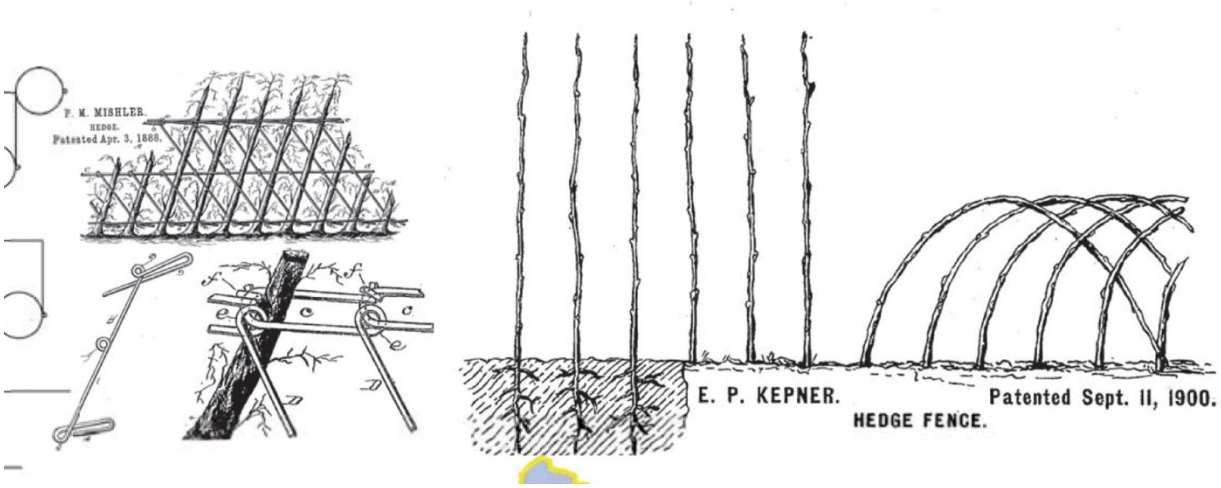

Figure 16: Hedge patents describing tying and binding living material with wire and a planting plan for woven hedge. *Image Google patents*

Figure 17: An Osage Hedge tree overgrown for decades and draped over wire. *Photo by author*

Hedge making became the focus for Urbana Land Arts, which was interested in finding ways to deal with excessive brush while also bringing a degree of craft to the effort to define the boundaries of Heartland Pathways' rights-of-way. Urbana Land Arts found inspiration in the patent archive, where the history of fence making techniques and the machines for their production is conveniently compiled. (Hindle 2013)

An early, common theme in the archive dealt with planting suckering plants and weaving them as they mature into a living mesh. There were also horse drawn implements designed specifically for planting hedges that create a furrow for rows of thorny shrubs to be made. (fig. 18) Hedge patents quickly evolved to include wire, which was the cutting edge in material technology during the early 19th century. Wire patents mingled with the living hedge

for a period of time, but eventually wire and the specific methods for twisting and linking wire came to dominate the patent archive.

One of the interesting aspects of the evolution of the hedge and fence as expressed through the patent archive is the way in which it is linked to the development of new technologies. As we have already mentioned, wire-based systems quickly made the living hedge obsolete for practical purposes, simply because the organic process was cumbersome and required several years to develop into a viable barrier. The progression from the living hedge to a synthesis of wire and living material and eventually the forgoing of living material altogether happened over the course of a few decades.

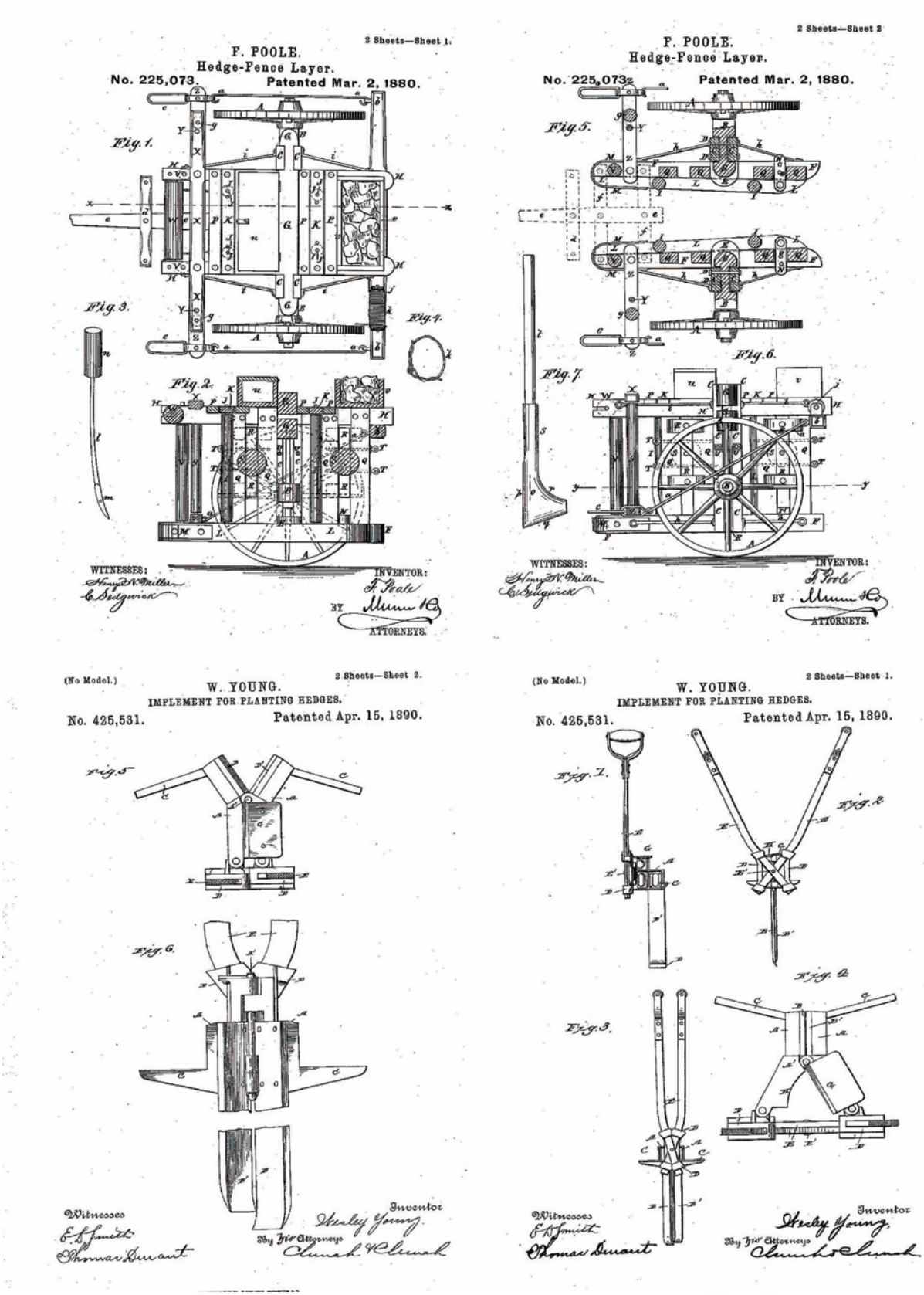

Figure 18: Hedge planting machine and hand tools. *Image Google patents*

Craft and aesthetic interest in hedge and fence making were very low in the minds of those farmers and industrialists who used the technology for pragmatic reasons. That was a rather stark difference from hedge and fence making in England, where a great amount of time and effort was, and to some extent still is, expended. (Barker 2012) The origin of the hedge is likely England, where such systems and their close counterparts, wattles, have been used for hundreds of years. Specialized hand tools and techniques were developed to bring craft and artistry to the practical project of hedge and fence making.

Taking as precedent both English tradition and the historical evidence compiled in the U.S. patent archive, Urbana Land Arts began experimenting with hedge making techniques and machine prototypes in order to discover ways in which hedge making might be revitalized in the context of Heartland Pathways' linear landscape. The goals of the designs were to utilize shrub species found in prairie areas, to create hedges that could be used to delineate the boundaries of the rights-of-way, and to develop tools that would facilitate the construction process.

The main principle behind living hedges is that the support and fill materials continue to transform according to plant lifecycles. But Urbana Land Art's goal was to eliminate specific living plant matter and to use the remains as material for construction. The first experiments dealt with combining wire and green brush to form a dense architectonic mesh. Early on, wire fence designs dealt largely with patenting ways in which wire could be bent and twisted to form fencing systems. In many cases, the variations of bending and twisting techniques were slight, but those methods formed the basis for Urbana Land Arts' own explorations of wire bending techniques. (fig. 19) The result was a twist, loop, and link method that could be applied to an

individually cut limb which would then be linked with other cut limbs to form a free standing hedge. The next step was to employ this hedge making method to create a more architectonic form.(fig. 20)

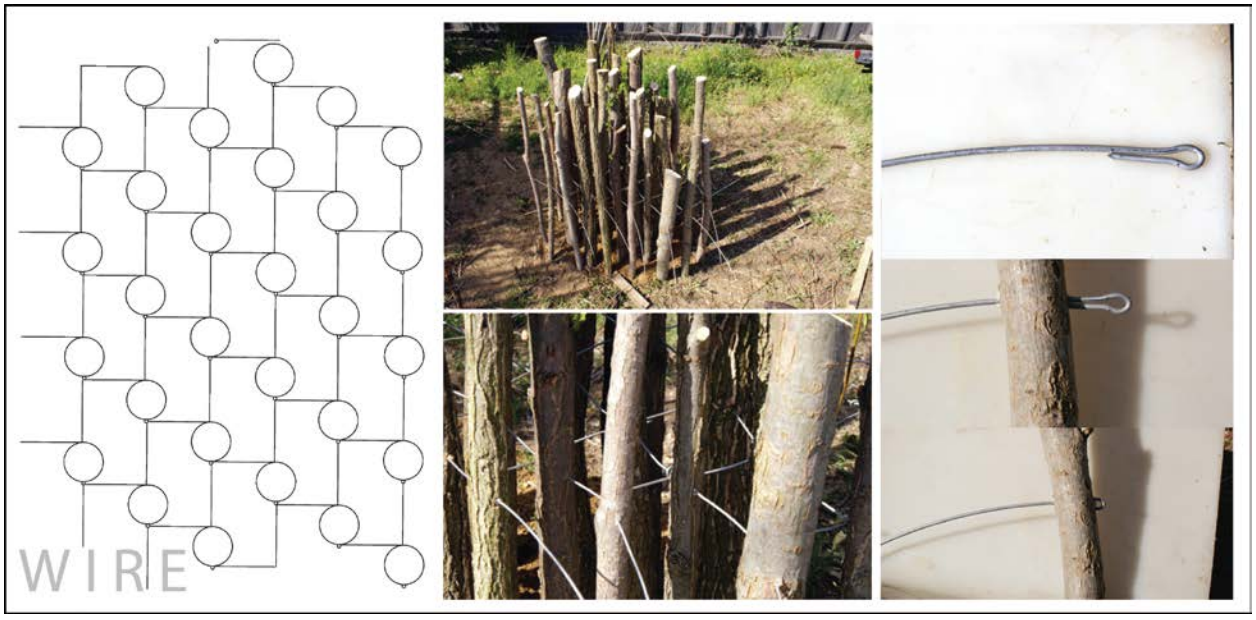

Figure 19: A technique explored in which wire would pierce branches and link together to form a dimensional mesh. *Photos by author*

Figure 20: A similar technique using wrapped bundles instead of pierced branches. *Photo by author*

The Architectonic Hedge was designed to combine the twist, loop, and link method into a larger steel armature that could provide support for an additional material to be applied to the hedge (for example, dimensional lumber) and to help create hard edges and delineate form. (fig. 21) The exploration of the Architectonic Hedge also sought to create something more than a barrier, such as a passageway, bench, or path. That goal was addressed in the final prototype which was installed at the Stock Pavilion on the campus of University of Illinois. (fig.22)

Figure 21: The Architectonic Hedge developed in conjunction with visiting Professor of Landscape Architecture, Richard Hindle. *Photo by author*

Figure 22: Installation views of walkway and bench. *Photo by author*

Although it satisfied the brief, so to speak, the Architectonic Hedge was not quite applicable to the Heartland Pathways right-of-way. Practically speaking the addition of the steel armature and dimensional lumber required that it be fabricated off-site and then transported for installation, which was logistically very difficult and ultimately too expensive to scale up to the dimensions of the right-of-way. Instead, Urbana Land Arts began exploring methods in which the work of hedge making could be accomplished on location

Looking to the patent archive for cues, Urbana Land Arts reconsidered an early period of hedge making. Tools and Implements was a project in which bundling brush was explored as a method for creating a cost effective hedge that could be constructed on location.

Bundling was hit upon as a way to consolidate brush and bring a dimension of intentionality to the piles of Autumn Olive that quickly amassed while working on the right-of-way. Bundling brush is a fairly straightforward task, but Urbana Land Arts' interest was playing with the idea of a device that might make the process more productive and result in interesting forms. As mentioned, tools and machines often accompanied hedge making methods and related patents, so the ambition was to create a bundling device that was evocative of those devices without faithfully reproducing them.(fig. 23)

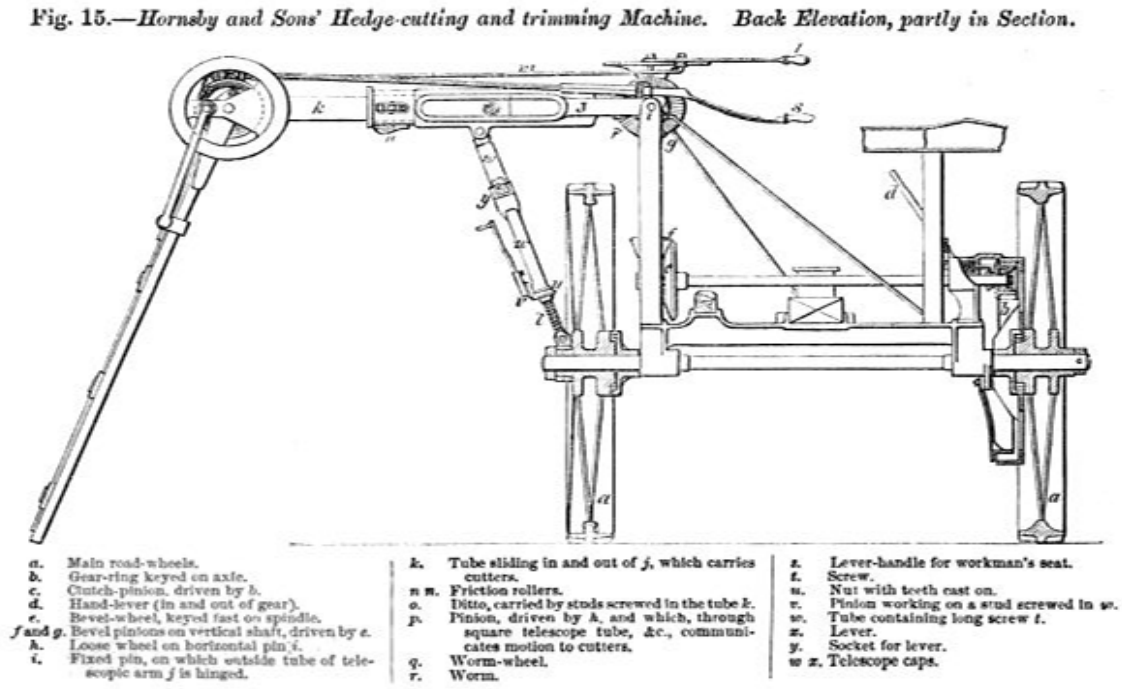

Figure 23: Diagram of hedge maintenance machine. *Image Google patents*

The first prototype was rather crude and made of wood with a scissor jack attached to help compress the brush, which was subsequently tied with twine or wire. This prototype was marginally effective and not portable. (fig. 24)

Figure 24: Installation view of Constituents Parts an exhibition showcasing the early bundling prototype. *Photos by author*

The second prototype was a more ambitious version of the first in that it used the same approach, with the scissor jack as a compressor, but was made of steel and designed like an implement with wheels and a sloped gutter that could convey the brush through compression and binding. The device could be pulled with a tractor or manually. However, this device was also only marginally effective at bundling and proved to be very cumbersome in the field, especially without some type of tractor to pull it. (fig. 25)

Figure 25: Bundling Prototype #2 designed and built by Evan Blondell and the author. *Photos by author*

The third and final prototype abandoned the scissor jack method altogether in favor of much simpler approach, which was nothing more than a long wooden pole with tie down straps attached. This design was incredibly effective and light weight, making it suitable for long distance transportation on foot. It must be said that the final prototype didn't exactly create an efficient method of bundling, as it relied heavily on hand work, but what it lacked in efficiency it made up for in efficacy.(fig. 26)

Figure 26: Prototype #3 simpler and much less cumbersome. *Photos by author*

Once an effective tool was developed, the design objective shifted to producing techniques for utilizing the bundles. Cut-Fill-Bundle utilized the bundling tool to explore bank stabilization techniques for the purpose of soil conservation and aesthetic interest.(fig. 27) For this project, a variety of Salix (willow) was used to create long slender bundles which were then bound with galvanized fence wire. The bundles were set along a steep slope in a staggered and overlapping pattern that clad the slope in neatly packed limbs. The technique is similar to some applications using live fascines, but the goal here was not to root the willow, which would be counter-productive for its use on the right-of-way, although it would be entirely possible to do so. (fig. 28) The bundles retain soil on the slope and, as they biodegrade, allow plants to colonize, which helps them in turn become soil. (fig. 29)

Figure 27: A hedge made from bundled willow. Prototype installed in St. Jacob, Illinois. *Photo by author*

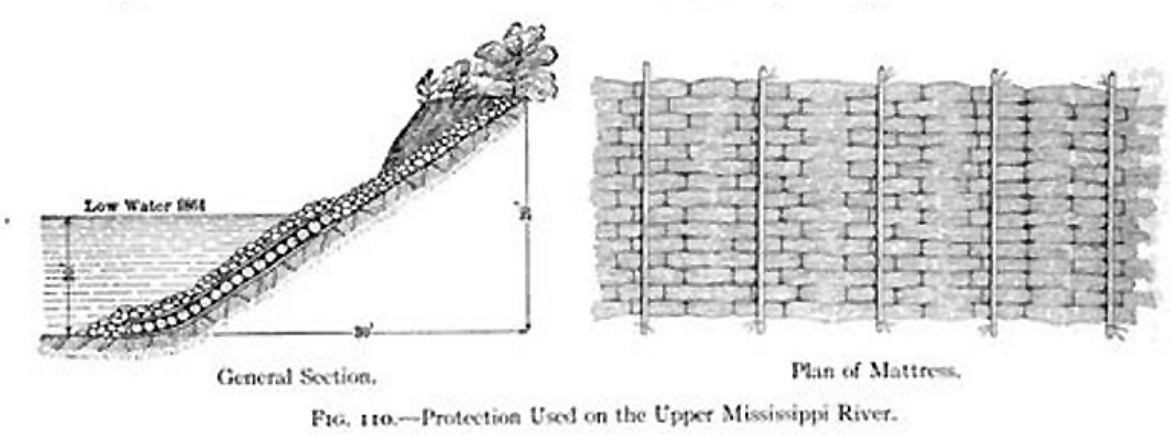

Fig. 110.—Protection Used on the Upper Mississippi River.

Figure 28: Diagram showing live fascines for bank stabilization. *Image Google patents*

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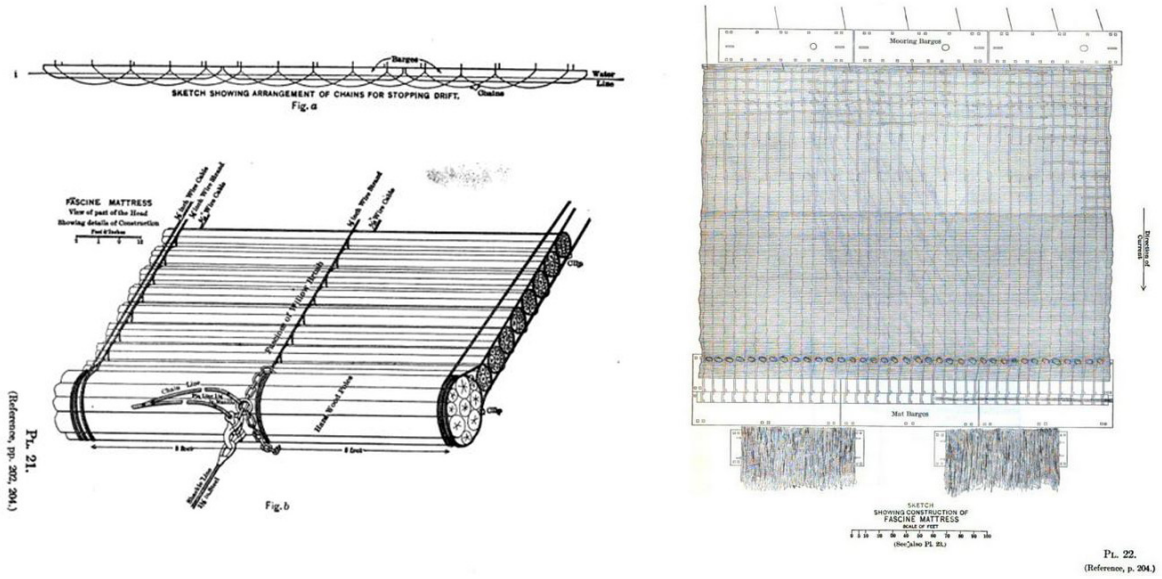

Figure 29: Two patents showing bundling technique and woven landscape mats. *Image Google patents*

Chapter 6: **Revelation Garden**

One of the first notable projects that Urbana Land Arts created in response to Heartland Pathways' concerns became known as Revelation Garden. (fig. 30) Specifically, Revelation Garden addressed David Monk's concern over a small but substantial prairie remnant that flanks the Wildcat Creek in Piatt County, Illinois. In 2013, the Illinois Department of Transportation (IDOT) made an upgrade to the bridge and viaduct at Wildcat Creek and, in doing so, spread many tons of excess overburden on the prairie known as Hill Prairie East. The overburden was a mix of construction debris and clayey soil removed when the channel of Wildcat Creek was excavated. The result was the entombment and destruction of a significant prairie remnant. IDOT's actions were met with strong disapproval from David Monk, who was not consulted by IDOT during the planning process. The subsequent dispute between Heartland Pathways and IDOT began to elucidate the typical challenges with which the former must contend.

Figure 30: Revelation Garden shortly after completion. *Photo by author*

Because of its linearity, Heartland Pathways is difficult to defend against encroachment. The rights-of-way stretch 34 miles across many jurisdictions and, in most instances, form a margin along roads and agricultural fields. A prairie that embodies a tract of land can be managed more easily than one which is linear for the simple reason that the edge of a tract can become a buffer between potential disturbances, such as those caused by IDOT, whereas the linear form of Heartland Pathways' rights-of-way is an edge alone, without a protected inner area, ,meaning that is easily compromised by marginal disturbances.

The linearity of Heartland Pathways' rights-of-way also means that is easily overlooked by people without a nuanced view of prairie. The popular conception of prairie is as a vast grassland, but, as David Monk points out, it is also composed of many broad leaf herbaceous plants that are often relegated to roadsides and marginal areas. Without being a kind of

connoisseur of prairie, it is easy to overlook the value of the plant material and remnant conditions of these marginal prairies.

David Monk is engaged in a constant prairie education effort, and the situation at Hill Prairie East is one example of his pedagogical technique. The discovery that IDOT had entombed the remnant prairie at Hill Prairie East set off a barrage of lengthy letters and repeated phone calls to the district manager at IDOT. These communications instigated a meeting with the district manager and a group of IDOT employees at Wildcat Creek in order to illustrate to IDOT the consequences of their oversight.

David Monk invited Urbana Land Arts to join him for the meeting where he lectured IDOT employees about the importance of prairie and the soils and conditions upon which it relies, and he demanded that the overburden be removed from Hill Prairie East. It should be pointed out that the author's attempts to video record the meeting were denied by IDOT's management. The meeting was tense but amicable, especially on the part of the IDOT management, who graciously listened to Monk's concerns. The same cannot be said for the delegation of maintenance workers who quickly lost interest in Monk's message and talked amongst themselves, apparently happy not to be doing whatever it was they would be doing if not at the meeting. At the end of the day, IDOT did not agree to remove the overburden and, although the delegation was courteous, it was obvious that Monk's prairie message fell on deaf ears. These circumstances were the catalyst for Revelation Garden.

Revelation Garden was a simple intervention in the conditions created by IDOT. Because Heartland Pathways has virtually no budget, it could not afford to hire a machine

operator to remove the overburden from Hill Prairie East. Urbana Land Arts devised a low cost strategy using a pick-ax, shovel, and manual labor to excavate a small portion of the remnant prairie. There is nothing exceptional in the technique for digging a ditch, but the effort was a way to respond to the issues with direct action and to document what this simple process revealed. Using the age old dig-and-fill technique, a half moon shaped mound was created from the excavated overburden.

The dig site was located at the point where the overburden met the unburied existing prairie remnant. The basic goal was to dig the overburden until the prairie soil was exposed. The hypothesis was that prairie species would reemerge if the overburden was removed. David Monk advised that prairie plants are very deeply rooted in order to survive long periods of drought, hot temperatures, or catastrophic denudation. The hypothesis held true, as several prairie species did in fact reemerge including Purple Coneflower (*Echinacea*), Prairie Dock, (*Silphium terebinthinaceum*) and Rattlesnake Master (*Eryngium yuccifolium*),but these species were quickly succeeded by more urbanized plant species. In this way, Revelation Garden was not a viable strategy for remediating the damage done, but it was helpful in illustrating that a larger effort removing overburden could be successful given the right tools and a prolonged maintenance strategy.

Revelation Garden was an opportunity to get a firsthand look at the qualities and contrasts between prairie soil and urbanized soil. (fig. 31) David Monk is prone to say that what we see as prairie above ground is only part of the larger story, which is played out below the surface. The stark difference between the two made the task of determining where to stop

digging apparent. First, prairie soil in this location is composed of a light sandy humus with moderate amounts of clay, whereas the urbanized soil was dense and clayey with little to no humus. The urban soil contained construction debris, largely crushed concrete, which is very different from the smooth and rounded stones that occur in prairie soil. Prairie soils were created by erosion over great lengths of time after which the process of plant growth and decay built up layers of humus. The microscopic organisms responsible for breaking down living matter also form complex relationships with prairie plants and are increasingly being understood as critical components to prairie ecosystem health. (Packard, 1997)

Figure 31: Soil samples were taken from the revelation site and separated using water and graduated sieves. The top left is more recent urbanized soil clayey and jagged rock. The group top right consists of sandy clay, loam , and rounded pebbles. *Photos by author*

Chapter 7: **Experimental Orchard**

From the outset, Urbana Land Arts sought to be a nexus of collaboration, understanding that it is preferable to find points where overlapping interests can be leveraged to make efforts more significant and easier. Experimental Orchard is a great example of two groups with seemingly opposite goals finding ways to overlap and help each another. Autumn Berry Inspired is a specialty food producer that uses the edible berry of the Autumn Olive as a raw material for products such as fruit leather, jams, jellies, and alcoholic beverages. According to Autumn Berry Inspired, the fruit of the Autumn Olive contains high levels of lycopene, a substance that is thought to have health benefits. (fig. 32)

Figure 32: The ripened edible berry of the Autumn Olive. *Photo by author*

ABI views dense groves of Autumn Olive as an opportunity to cultivate and harvest an abundant yet overlooked source of healthy food. For this reason, Autumn Berry Inspired is seemingly at odds with Heartland Pathways and David Monk, who view the shrub as a "trash species" that under no circumstances should be encouraged. But Urbana Land Arts saw the potential for an unlikely collaboration between the two groups. To reiterate, one of the largest threats to Heartland Pathways' prairie remnants is colonization by the Autumn Olive shrub. The task of keeping the species at bay for 34 miles of rights-of-way approaches impossible, especially without full time employees or a steady flow of volunteers. This fact was the catalyst for joining the goals of Heartland Pathways and Autumn Berry Inspired in a quarter mile of right-of-way which became known as the Experimental Orchard.

Ordinarily fruit is grown in an agricultural context with rows of plants and easily manageable conditions, but, in the case of Experimental Orchard, the site takes on a very different form. Autumn Berry Inspired identifies an area of Autumn Olive that is particularly abundant with fruit and prepares the area as if it were a kind of orchard, clearing the understory and pruning shrubs so that workers can more easily harvest berries. As such, a large portion of the labor involved with Autumn Berry Inspired process is also activity that Heartland Pathways requires. Urbana Land Arts facilitated a project in which Heartland Pathways allowed Autumn Berry Inspired access to a right-of-way for the purpose of harvesting berries. The collaboration turned out to be incredibly successful for both parties.

Autumn Berry Inspired brought a five-member crew equipped with lawn mowers and pruning tools to pave the way for pickers to harvest on the right-of-way. Within a period of a

few days, the "bushwhackers," as they referred to themselves, cleared the understory from the densest quarter mile of Autumn Olive, a task that would have taken an entire season for Urbana Land Arts and Heartland Pathways to accomplish alone.

The next step for Autumn Berry Inspired was to bring in the pickers. The company experimented with various methods of harvesting Autumn Olive berries and arrived at a very simple approach, which involves long poles, tarps, and a portable walk-in cooler. (fig. 33) Workers would spread a tarp under the canopy of a shrub then pull a heavily laden bough closer to the ground and strike the bough with long wooden poles, causing the berries to fall onto the tarp, after which they were funneled into large plastic containers and quickly whisked away to the walk-in cooler. The technique was very effective, as only the ripest and sweetest berries would fall to the tarp, and the cooler ensured that the berries maintained freshness until they could be processed at a food handling facility.

Figure 33: Left, Autumn Berry Inspired brought a walk-in cooler to store freshly picked berries. Right, pickers harvested more than 600 lbs. of A. olive using this method. *Photos by author*

After Autumn Berry Inspired finished its harvest, Heartland Pathways was left with a quarter mile of Autumn Olive that had been cleared of its understory, which was largely composed of the next generation of the shrub. This created a much more manageable condition for Heartland Pathways to manage and removed more than 600 pounds of berries—and, more importantly, the seeds they contain—from that portion of the right-of-way. Moving forward, Heartland Pathways could continue to maintain the cleared understory with controlled burns and selective pruning or to eliminate the grove altogether.

Chapter 8: **Inter-Urban**

Inter-Urban was a project conceived as a mobile venue combining an antique derrick crane formerly used for railroad maintenance, a derelict snack food delivery truck, and remnants of a wooden grain elevator. (fig. 34) The project was a collaboration between Urbana Land Arts and the artists Christopher Carl, Sutton Demlong, Paul Howe, and Bobby Zokaites in the summer of 2012. The project culminated in a performative exhibition on a portion of Heartland Pathways' right-of-way in Amenia, Illinois, in the shadow of the defunct Amenia grain elevator.

Figure 34: Simultaneous Installation view of Inter-Urban at Amenia, Illinois. *Photo by author*

The title Inter-Urban evokes the electric light rail system that once connected burgeoning city centers in Illinois with rural towns. Made obsolete by the widespread

dissemination of the automobile and poor return for its investors, the interurban was decommissioned and its roads abandoned.

The Inter-Urban project borrowed its name as a way to connect the city conceptually with outlying agricultural areas using cultural material as a literal and figurative vehicle.(fig. 35)

Figure 35: The elements and actors of Inter-Urban. *Photos by author*

As mentioned above, material is imbued with cultural significance, as it holds the key to obscure and forgotten histories. The materiality of the Inter-Urban project connected the past with the present by redeploying cultural material that had been instrumental in the morphology of the mid-western landscape. Inter-Urban is not history for history's sake; in other words, the goal was not to simulate the past but, rather, to re-present the techniques and materials of the past in a new context; to engage with history as becoming rather than as a static moment or image.

During the project, the derrick crane brought up a significant point of contention between David Monk and Urbana Land Arts. The crane was originally used to build and maintain railroads and was part of a suite of vehicles used for those purposes. David Monk purchased the crane after it was decommissioned in favor of a more modern version. He then placed it along a portion of Heartland Pathways known as Shady Rest as an artifact for trail visitors to ponder. Urbana Land Arts convinced Monk to allow it to remove the crane from Shady Rest and to make it functional once more.

The vision behind Inter-Urban was to pull the crane with the snack food truck. The latter contained modules that, when composited, would form amphitheatre seating. Once on location, the crane would be used to lift the modules from the truck through an opening in the roof, after which the components would be put in place to form the seating. Problems arose when David Monk visited Urbana Land Arts during construction and found the crane *without* its original wheels, which were designed for riding rails. Urbana Land Arts needed to modify the crane with tires in order to use the truck to pull it. Monk was outraged and threatened to withdraw his support, including the crane. After much debate about the philosophy of restoration, the ULA team was able to satisfy Monk's concerns by ensuring that the crane was not irreparably altered. One person's history is another's tragedy. In fact, what Monk had viewed as the ruinous result of Urbana Land Art's work was from another perspective the respectful and painstaking recreation of a decomposing artifact. ULA had brought the crane back into working order and, with some additions, had given it new life and potential.

Chapter 9: **Stewardship as a Creative Act**

The projects presented here together offer an expanded view of stewardship through a maintenance practice that is generative as well as conservative. Contemporary understanding of the inextricable relationship between nature and culture begins to breaks down the traditional dichotomy between the two. The breakdown necessitates the expansion of a landscape ethic that can accommodate synthetic notions of nature and culture. Stewardship must also reflect these new notions of nature in order to inform a maintenance practice that can operate with a broad spectrum of activities and respond with multiple narratives.

Maintenance is the work of stewardship. Maintenance is practical, tedious, banal, and exhausting. It is manual, visceral, in real time, and through the senses. It *is* art. It is exploration, and it is invention. Maintenance is intrinsically human and necessary; so, too, is the landscape.

References

Balmori, Diana and Joel Sanders,. *Ground Work: Between Landscape and Architecture*. New York: Monacelli Press, 2011.

Barker, Hugh. *Hedge Britannia*. London: Bloomsbury Publishing, 2012.

Corner, James."The Agency of Mapping: Speculation, Critique, and Invention." *Mappings*. Denis Cosgrove, ed. London: Reaktion, 1999.

Craul, Phillip J. *Urban Soils Applications and Practices.* New York: John Wiley and Sons, Inc., 1999. Print.

Del Tredici, Peter. Wild Urban Plants: a field guide. Ithica, NY. : Cornell University Press, 2010.

Hays, David. L. "Making History." University of Illinois. Urbana. Spring 2013. Seminar.

Harper, Glen and Moyer, Twylene. Conversations on sculpture. Hamilton, New Jersey: International Sculpture Center Press, 2007.

Hindle, Richard. "Botanical Bricks" University of Illinois. Urbana. Spring 2013. Studio.

Kepner, Erastus P. . "Hedge Fence." US Patent 657, 876. February 1889.

Mishler, Phares M. . "Hedge." US Patent 403,949. November 1888.

Packard, Stephen and Cornelia F. Mutel, eds*. The Tallgrass Restoration Handbook.* Washington D.C: Island Press, 1997.

Piatt, Emma C. *History of Piatt County : Together with a Brief History of Illinois from the Discovery of the Upper Mississippi to the Present Time.* Chicago: Shepard & Johnston, 1887.

Poole, F. et al. "Hedge-Fence Layer." Patent 225,073. March 1880.

Sears, Stephen. "American Vernacular" University of Illinois. Urbana. Fall 2011. Seminar.

Urban, Michael A. " An uninhabited waste: transforming the Grand Prairie in nineteenth century Illinois, USA." *Journal of Historical Geography.* Special issue Elsevier, Vol. 31 (2005): 647-665.

Young, Wesley. et al. "Implement for planting Hedges." US Patent 425,531. April 1890.